

NEW SPECIES IN THE GENUS *EUCERCERIS*
WITH NOTES ON RECORDED SPECIES AND
A REVISED KEY TO THE GENUS
(Hymenoptera: Sphecidae)

BY H. A. SCULLEN

Department of Entomology, Oregon State College¹, Corvallis, Ore.

Since publication of the writer's "A Review of the Genus *Eucerceris*"² in 1939, several undescribed forms have come to his attention. Some of these new species have been collected by the author on his trips into the southwestern desert country, while others have been received through the kindness of other collectors and institutions. Additional information has been secured relative to established species and this is included. A new key to the genus has been prepared to embody the new species here described and to correct certain errors which have appeared in the former key. Future field studies on the biology of the genus may show that some of these new forms are male and female of the same species.

The wing venation nomenclature here used is that of Cresson. (Trans. Amer. Ent. Soc. 1887 Suppl. Vol., p. 5.)

REVISED KEY TO *EUCERCERIS*

Seven segments in abdomen.....males
Six segments in abdomen.....females

MALES

1. Second submarginal cell not petiolate..... 2
- Second submarginal cell petiolate.....20
2. No rows of erect bristles on venter.....*flavocincta*
- One or more rows of erect bristles on venter..... 3
3. Row of bristles on fifth sternite only, sometimes
very inconspicuous..... 4
- More than one row of bristles on venter.....11
4. Second femora with a deep depression bordered with a row of
long hairs; two inconspicuous clusters of bristles on stern-
ite 5.....*lacunosa*
- Second femora normal..... 5
5. Thorax covered with a dense layer of short setæ giving a dis-
tinct velvet appearance.....*velutina*
- Setæ of thorax normal..... 6

¹These investigations are financed largely by grants for General Research administered by the Graduate School, Oregon State College. Published with the approval of the Monographs Publication Committee, Oregon State College. Research paper No. 126.

²Additional material belonging to the genera *Cerceris* and *Eucerceris*, especially from the southwest and Mexico, will be most welcome for study. Information is also needed on the biology of the group.

6. Yellow vittæ of face fusing above antennæ.....*arenaria*
- Yellow vittæ of face not fusing above the antennæ..... 7
7. Dark vittæ of face extend onto clypeus..... 8
- Dark vittæ do not extend beyond the dorsal clypeal border, except for a hairline between clypeal lobes..... 9
8. Very short (not over one eighth as long as the sternite is wide) broken row of bristles on fifth sternite.....*melanosa*
- Row of bristles on fifth sternite about one third as long as sternite is wide.....*melanovittata*
9. Row of bristles about one fourth as long as sternite is wide; thorax conspicuously hairy with long setæ.....*mellea*
- Row of bristles from one third to one half as long as sternite is wide; setæ of thorax short and inconspicuous.....10
10. Row of bristles about one third as long as the sternite is wide; considerable amber on various parts of body.....*rubripes*
- Row of bristles about one half as long as the sternite is wide; body color black and yellow.....*fulvipes*
11. All three rows of bristles subequal in length of bristles and length of rows.....12
- Row of bristles on fifth sternite either much shorter or different in form from other rows.....14
12. Each row of bristles distinctly separated into two parts *zonata*
Bristles in undivided rows.....13
13. Length about 15 mm.; no yellow stripes on mesoscutum *superba*
- Length about 10 mm.; two short yellow stripes as a rule on mesoscutum*triciliata*
14. Distal row of bristles only slightly shorter than the others but bristles waxed into a compact layer and shorter than the others.....15
- Distal row of bristles hardly distinguishable or at least very short16
15. Ten to twelve mm. in length; black and yellow.....*insignis*
- Fifteen or more mm. in length; considerable amber *canaliculata*
16. Yellow of face fused above the antennæ.....17
- Yellow of face not fused above antennæ except in rare individuals19
17. Anterior ridges of tergites black or with broken yellow bands*pacifica*
- All tergites presenting solid wide bands of yellow.....18
18. Markings creamy white.....*elegans*
- Markings yellow.....*hespera*
19. Enclosure black; immaculate and deeply ridged subparallel to base; mesal borders of eyes subparallel; black with cream colored markings.....*baja*
- Enclosure with oval yellow patches and almost smooth; mesal borders of eyes converging dorsad; black with yellow markings*similis*
20. Mandibles abnormally large; rows of erect bristles on sternites 3 and 4, inconspicuous cluster on 5, somewhat hidden by long

- setæ *montana*
 — Mandibles normal.....21
 21. Scape wide and flattened; projections on posterior distal angles of first five segments of the flagellum; rows of erect bristles on sternites three and four, inconspicuous cluster on five *angulata*
 — Antennæ normal in form, long row of erect bristles on sternite five closely packed.....22
 22. Abdomen with ferruginous.....*tricolor*
 — Abdomen black and creamy yellow, no ferruginous *vittatifrons*

FEMALES

1. Second submarginal cell not petiolate..... 2
 — Second submarginal cell petiolate..... 6
 2. With no distinct projection or extension on the ventral clypeal border or surface, except for a slight medial carina; ferruginous with yellow markings.....*arizonensis*
 — With a conspicuous projection or extension on the ventral clypeal border or surface..... 3
 3. Clypeal surface with an emarginate projection on the surface of which are two subparallel carina; brown with depressions black *brunnea*
 — Ventral clypeal border with a rounded medial extension; black with yellow markings..... 4
 4. Mandibular teeth acute; with a large amount of fulvous to ferruginous coloring.....*velutina*
 — Mandibular teeth rounded and not acute; black with yellow markings only..... 5
 5. Length about 23 mm.....*violaceipennis*
 — Length about 15 mm.....*punctifrons*
 6. Distinct projections or elevations on the surfaces of the medial or lateral lobes of the clypeus..... 7
 — Without distinct projections or elevations on the surfaces of the medial or lateral lobes of the clypeus.....13
 7. Distinct projections or elevations on the surfaces of the lateral lobes only..... 8
 — Distinct projections or elevations on the surface of the medial lobe only.....10
 8. Projections on the lateral lobes of the clypeus in the form of low conical protuberances; about 10 mm. in length.....*biconica*
 — Projections on the lateral lobes of the clypeus in the form of high dentate processes; about 15 mm. or more in length 9
 9. Ferruginous with yellow markings.....*canaliculata*
 — Fuscous to black with yellow markings.....*canaliculata* var. *atronitida*
 10. Body black with cream colored markings; black vittæ extending to apical clypeal border.....*arenaria*
 — Body largely ferruginous, yellow and black; black vittæ not extending to apical clypeal border.....11

11. Mandibles with two distinct teeth.....*conata*
- Mandibles with a single small denticle.....12
12. Clypeal process in the form of an acute projection.....*rubripes*
- Clypeal process in the form of a low, rounded, cone-shaped elevation*mellea*
13. Apical clypeal border with one large process.....14
- Apical clypeal border with more than one process and these relatively small.....20
14. Process on clypeal border acute.....15
- Process on clypeal border not acute.....17
15. Mandibles with one large, triangular, obtuse tooth somewhat divided*zonata*
- Mandibles with one single pointed tooth.....16
16. Abdomen largely yellow.....*superba*
- Abdomen ferruginous proximally, black distally...*superba* var. *bicolor*
17. Clypeal process truncate, distal border of process sinuate*sinuata*
- Clypeal process broadly rounded.....18
18. Lateral angles of pronotum dentate.....*angulata*
- Pronotum not dentate.....19
19. Enclosure transversely striated.....*cerceriformis*
- Enclosure pitted.....*montana*
20. Two processes on the apical region of the clypeus.....21
- More than two processes on the apical region of the clypeus23
21. Clypeal processes truncate and not widely separated *bitruncata*
- Processes pointed and widely separated.....22
22. Pygidial area narrower at the proximal end than in the middle; without rufous on the abdomen.....*vittatifrons*
- Pygidial area sub equal at the proximal end and in the middle; rufous on the first three or more abdominal segments*tricolor*
23. One undivided tooth on the mandible.....24
- Two single or one divided tooth on the mandible.....27
24. No distinct processes on the clypeus below the distal border25
- One or more small denticles or projections on the clypeus below the distal border.....26
25. Four processes on the distal clypeal border about equal in size and equally spaced.....*fulvipes*
- Two pairs of processes on the distal clypeal border widely separated*insignis*
26. Two widely separated, divided, acute teeth and one minute, medial denticle on the clypeal border; two medial denticles on the clypeus below the border; enclosure deeply ridged; 15 mm. or more in length.....*flavocincta*
- Two widely separated, undivided teeth and a pair of medial denticles on the clypeal border; a medial pair of denticles on

- the clypeus below the border; ridges of enclosure very inconspicuous; length about 10 mm.....*similis*
27. Yellow of abdomen not forming complete bands; body almost completely ferruginous.....*ferruginosa*
- Yellow of abdomen forming complete bands on first five tergites28
28. Two truncate projections on the clypeal border between which is a cluster of long bristles; below the bristles is a bilobed process*elegans*
- Two widely separated, acute projections on the clypeal border between which lies a broad truncate process with an uneven margin*ruficeps*

GROUP A

Second submarginal cell of the forewing not petiolate in either sex

EUCERCERIS LACUNOSA Scullen

Additional records: Arizona: 2 males, 35 mi. e. of Douglas, 4600 feet elevation, August 1, 1946 (H. A. S.)¹; male, Ramsey Canyon, Huachuca Mts., 5400 feet elevation, July 28, 1946; male, Tucson, 2400 feet elevation, August 17, 1946.

Eucerceris brunnea Scullen, new species

Figs. 1A, B, C; 13

A very distinctive species easily recognized by its large size and almost entirely brown color, as well as other structural differences.

Female. Length 21 mm. Head closely pitted, clothed with amber hairs; mandibles with a large triangular bicuspid tooth, ferruginous with black tips and denticles; clypeus very broad and short with a medial process slightly emarginate on the dorsal surface of which are two subparallel carina and with a cluster of long bristles below, surface hairs long and silvery; antennæ normal in form, ferruginous with more or less black on the distal half; front wide, ferruginous with black of the vertex extending through the antennal scrobes to and along the dorsal border of the clypeus; vertex black; occiput and genæ ferruginous.

Thorax very closely pitted, clothed with amber hairs, which are very short on the notum becoming longer distally and ventrally; dorsum ferruginous becoming black along the sutures; pleuron and venter largely black; enclosure deeply and closely pitted with a medial groove; legs ferruginous; wings subhyaline with a clouded area extending throughout the anterior half of the forewing; sec-

¹To save space the author will be referred to by initials only.

ond submarginal cell not petiolate (fig. 1B); second transverse-cubital vein with a distinct spur.

Abdomen normally pitted and clothed with amber hairs, ferruginous; first tergite with slight rounded elevations on the anterolateral angles; pygidial area (fig. 1C) truncate distally, converging proximally, with a carina around the border, fringed with amber bristles.

Holotype, female, Museum of Comparative Zoology, JACALA, HIDALGO, MEXICO, 4500 feet elevation (Fig. 13), June 22, 1936, (Ralph Haag).

Eucerceris velutina Scullen, new species

Figs. 2A, B, C, D, E, F; 14

The male differs from all other species of the genus so far known by having the pronotum and mesascutum clothed with velvet-like setæ. A tooth on the mandible of the male is uncommon. The lobe-like projection on the clypeal border of the female resembles the clypeal projection on the female of *E. montana* Cresson.

Male. Length 15 mm. Head subequal to thorax in width, normally pitted, clothed with long light amber hairs becoming longer on the ventral clypeal border; mandibles with a single acute tooth, yellow with black tips and denticles; medial lobe of clypeus extended to form a short trilobed medial process; antennæ normal in form, yellow proximally becoming fulvous and fuscous distally but with the tips fulvous; front narrowing above, yellow to fulvous; vertex, occiput and genæ fuscous to black with elongated yellow to fulvous patches confluent with the lateral borders of the compound eyes.

Thorax fuscous to black with the following parts fulvous to yellow: scutellum, tegula, irregular patch on enclosure, patch on prothoracic tubercle, irregular patch back of tubercle, and a large T-shaped area on the sternum; pronotum and mesascutum clothed with velvet-like short black setæ; pleuron and sternum with longer setæ; enclosure deeply pitted with a slight medial groove; prolegs and mesalegs largely yellow with some fuscous on coxæ and dorsal aspects of femora; posterior leg fuscous except ventral aspect of tibiæ and all of tarsi; wings subhyaline with the clouded area extending over the anterior two thirds of the forewing; second submarginal cell not petiolate (fig. 2E).

Fig. 1A. *E. brunnea*, ♀, face; 1B. ♀, fore wing; 1C. ♀, pygidial area. Fig. 2A. *E. velutina*, ♀, face; 2B. ♀, fore wing; 2C. ♀, pygidial area; 2D. ♂, face; 2E. ♂, fore wing; 2F. ♂, pygidial area. Fig. 3A. *E. melanosa*, ♂, face; 3B. ♂, fore wing; 3C. ♂, pygidial area. Fig. 4A. *E. melanovittata*, ♂, face.

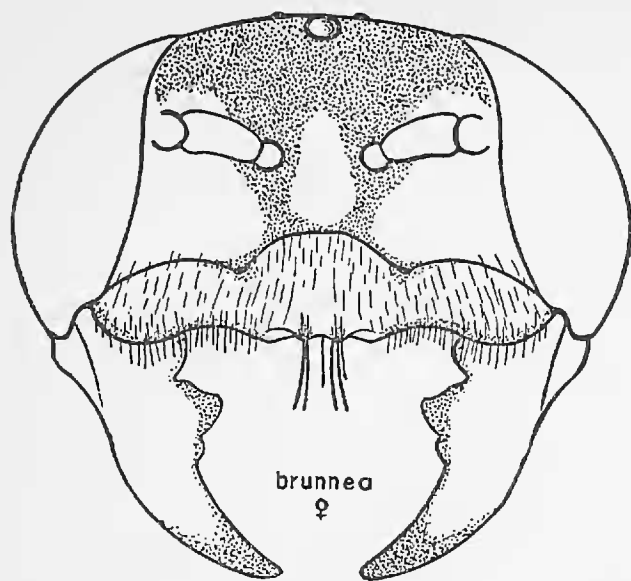


Fig. 1A

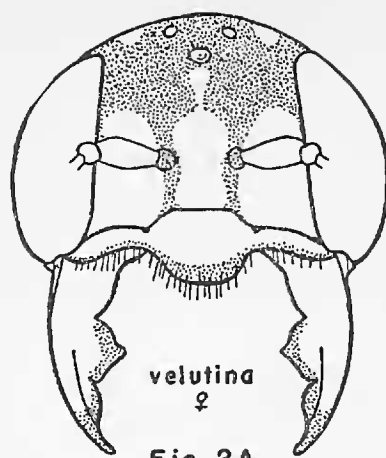


Fig. 2A



Fig. 2B

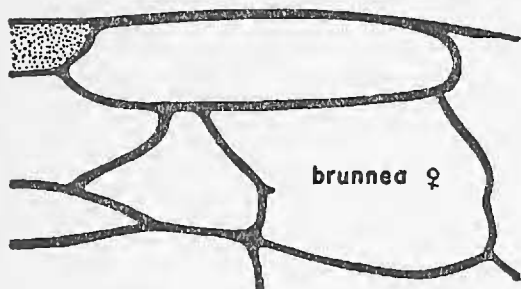


Fig. 1B

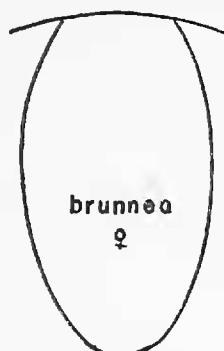


Fig. 1C

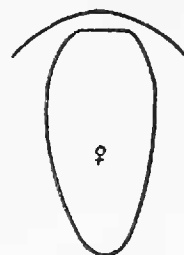


Fig. 2C

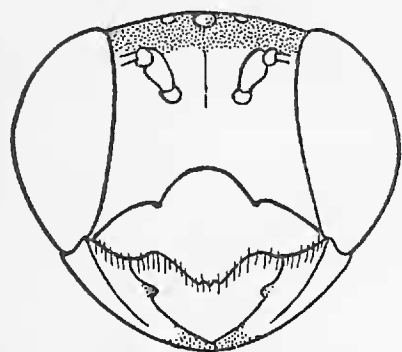


Fig. 2D

Fig. 2D

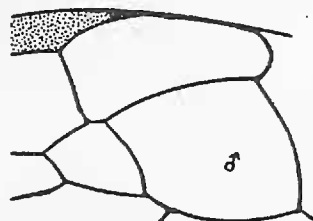


Fig. 2E

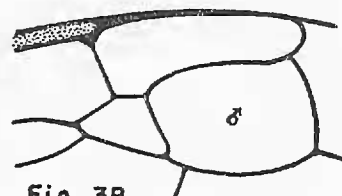


Fig. 3B

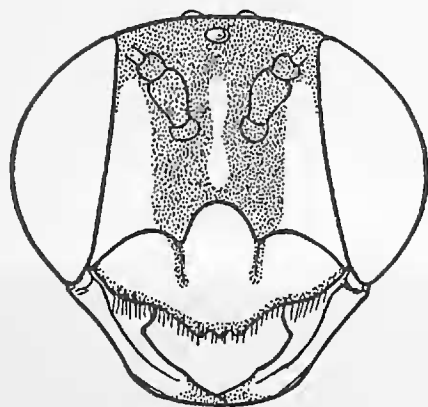


Fig. 3A

Fig. 3A

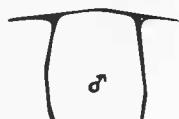


Fig. 2F

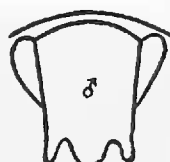


Fig. 3C

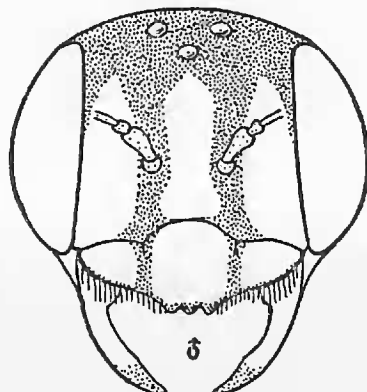


Fig. 4A

Fig. 4A

Abdomen sparsely pitted on convex areas and closely pitted on concave areas, sparsely clothed with short hairs dorsally but with more and longer hairs ventrally; one long row of loosely arranged bristles on sternite 5; tergite 1 black with a divided yellow band; tergites 2, 3, 4 and 5 with narrow yellow bands on the posterior borders, otherwise black except for ferruginous medial bands on tergites 2 and 3; tergite 6 yellow with a medial black area; sternite 1 black laterally, yellow medially; sternite 2 largely yellow; remainder of venter fuscous becoming more fulvous distally on sternites 5, 6, and 7; pygidial area (fig. 2F) sparsely pitted, ferruginous.

Female. Length 13 mm. Head closely pitted, clothed with short amber hairs; mandible with a large triangular tooth, yellow with fuscous tips and denticles; clypeus broad and very short, yellow except for ventral border which is fuscous, with a medial broad rounded thin process, with a few long bristles below; antennæ normal in form, yellow proximally becoming ferruginous with some medial segments darker; front yellow with fuscous vittæ extending through the antennal scrobes to the dorsal clypeal border; vertex ferruginous except for a divided yellow patch back of ocelli and a narrow line in front of ocelli; occiput and genæ ferruginous except for long curved patches of yellow confluent with the lateral borders of the compound eyes.

Thorax closely pitted except propodium; pronotum with a yellow band on the posterior border extending between and including the tubercles; mesoscutum ferruginous with two yellow stripes between and small yellow patches in front of the tegula; scutellum sparsely pitted, yellow with the borders becoming fulvous to fuscous, metanotum fulvous with the borders fuscous, propodium sparsely pitted with large yellow patches bordered by black laterally and fulvous medially and with a wide medial black band between the fulvous patches; enclosure sparsely pitted, with a central groove, yellow; pleuron fuscous to black with a yellow patch back of the tubercles; sternum black with two small yellow patches on the mesopectus and two on the mesosternum; legs yellow becoming fuscous proximally; wings similar to those of the male; second submarginal cell not petiolate. (fig. 2B).

Abdomen proximally ferruginous to fulvous becoming fuscous distally with yellow bands on the posterior ridges of tergites 2, 3, 4 and 5, divided yellow bands on the anterior ridges of tergites 3, 4 and 5; tergite 1 with a broad yellow area divided by a wedge-shaped patch of fulvous with a fuscous central patch; venter largely dark fuscous with lighter patches laterally; pygidial area (fig. 2C) deeply and closely pitted, oval in form, with a carina around the border, fringed with bristles.

Holotype, male, collection of Geo. E. Bohart, SAN BERNARDO, MEXICO, August 19, 1935, (Geo. E. Bohart). Allotype, female, Calif. Acad. Sci., Ent., same data but August 16, 1935. Paratypes,

San Bernardo, Sonora, Mexico, (Geo. E. Bohart), a male August 17, 1935, and a female, August 10, 1935. Paratypes in the author's collection.

GROUP B

Second submarginal cell petiolate in the female but not in the male

EUCERCERIS FLAVOCINCTA Cresson

The known range of this species has been greatly expanded to the northeast by one female taken at Lethbridge, Alberta, June 30, 1935, by R. W. Salt and one male taken at Wawanesa, Souris River, Manitoba, July 2, 1933, by N. A. Weber.

Eucerceris melanosa Scullen, new species

Figs. 3A, B, C; 13

The male of this species closely resembles the male of *E. flavocincta* Cresson, from which it may be separated by the short row of bristles on the 5th sternite.

Male. Length 12 mm. Head slightly wider than thorax, punctation medium, clothed with silvery hairs becoming longer on the lateral clypeal wings; mandibles nondentate, fuliginous becoming fuscous at the tip; clypeus yellow except the apical margin which is black and narrow vittæ partly separating the medial lobe from the lateral lobes, medial lobe tridentate at the apical border; antennæ normal in form, scape and pedicel fuscous, flagellum becoming darker distally; front narrowed slightly above, yellow with wide black vittæ extending through the antennal scrobes to and onto the clypeus; vertex, occiput and genæ all black except for a small round yellow spot back of the compound eye.

Thorax moderately punctate, clothed with silvery hairs, short on the notum but becoming much longer on the pleura and sternum, black except for narrow band on the posterior border of the pronotum, the metanotum, spot on the tegula and a very small spot back of the tubercle of the prothorax; enclosure deeply ridged with ridges at a 30° angle with the base, with a medial groove; femora fuscous; tibiæ yellow and fulvous; tarsi largely yellow; wings subhyaline, anterior half of forewing cloudy; second submarginal cell not petiolate. (Fig. 3B).

Abdomen normally punctate, yellow bands along the posterior border of tergites 1, 2, 4, 5 and 6, yellow band on tergite 1 broad and slightly emarginate, posterior ridge of sternite 3 fulvous to fuscous; venter largely fuscous, elongated yellow patches on sternites 3 and 4; a short divided row of bristles on the posterior border of sternite 5; pygidial area (fig. 3C) normal in form; margined by a carina and fringed with a row of bristles.

Holotype, male, University of Minnesota, TEHUACAN, PUEBLA, MEXICO, July 12, 1935, (A. E. Pritchard).

Eucerceris melanovittata Scullen, new species

Figs. 4A, B, C; 14

This species superficially resembles *fulvipes* Cr. but may be distinguished from that species by the shorter row of hairs on sternite five and the more smooth enclosure as well as characters mentioned in the key. Its markings are cream colored. In some paratypes the black vittæ of the face do not reach the ventral border of the clypeus.

Male. Length 11 mm. Head slightly wider than the thorax, moderately pitted, clothed with silvery hairs, face creamy white with black vittæ extending through the antennal scrobes to the apical clypeal border separating the lateral wings from the medial lobe of the clypeus; mandibles nondentate ferruginous becoming very dark at the tips; clypeus tridentate on the apical border of the medial lobe, silvery hairs massed along the apical borders of the lateral lobes; antennæ normal in form, fuscous to almost black distally; vertex, occiput and genæ black except for small round creamy spots back of the compound eyes.

Thorax moderately pitted, clothed with silvery hairs, black except for creamy white marks as follows: band on posterior border of pronotum, tubercles, small patch back of tubercles, patch on tegula, small lateral spots on mesascutellum, the metanotum, lateral oval patches on the propodium, the mesasternum and the metasternum; enclosure smooth except for a few scattered pits and a medial groove; legs ferruginous except for the coxæ and trochanters which are darker and for yellow spots on the coxæ, metatrochanters and the pre- and mesatibiae; wings subhyaline with a clouded area covering the anterior third of the forewing on the distal half; second submarginal cell not petiolate (fig. 4B).

Abdomen sparsely pitted with narrow cream colored bands on the posterior ridges of tergites, 2, 3, 4, 5 and 6, tergite 1 with a broad divided band of cream; venter fuscous to black with a small cream spot on sternite 2 and broad cream colored bands on sternites 3 and 4; a short row of closely packed hairs on the posterior border of sternite 5; pygidial area (fig. 4C) typical in form.

Holotype, Calif. Acad. Sci., Ent., 25 mi. east of EL PASO, TEX., July 13, (E. C. Van Dyke).

Paratypes, male, Chisos Mts., Big Bend Park, July 6, 1942 (H. A. Scullen); male, 10 mi. east of Douglas, Ariz., July 11, 1940 (E. S. Ross); male, near Marathon, Tex., July 7, 1942 (E. C. Van Dyke); male, Sierra Blanca, El Paso Co., Tex., July 8, 1917 (Jos. Bequaert); male, Mountainair, N. M., 1924 (Chas. H. Hicks); male, Ft. Davis, Tex., Sept. 6, 1943 (R. W. Strandtmann).

(Continued)